

Improvement Objectives

APPENDIX 1

IO4 - Carbon Management: Reduce our carbon footprint

Outcomes

Our objective is to take steps to reduce the Council's carbon footprint and inform and assist others within the Borough to do the same.

The overall objective is to reduce the Council's carbon footprint of 26,035 tonnes by 45% by 2019.

Why have we chosen this?

Our climate is undergoing dramatic changes as the direct result of greenhouse gas (GHG) emissions from human activity. Carbon dioxide (CO₂) is the most significant and prevalent GHG is emitted mostly from the burning of fossil fuels like coal, oil and natural gas.

The UK Government has committed to take action and has introduced the Climate Change Act with a target to cut carbon emissions by at least 80% by 2050, with a minimum reduction of 26% by 2020 across the UK.

CCBC is a large organisation and as such has a large carbon footprint. We have an obligation to take steps to minimise our carbon footprint and the associated negative impact on the environment.



A greener place to live, work and visit
Man gwyrddach i fyw, gweithio ac ymweld



Improvement Objectives

IO4 - Carbon Management: Reduce our carbon footprint

For the year 2015/16 the overall level of progress in this objective is deemed to be **successful**.




Throughout the following report pages, there is a mixed view of achievement levels against all the actions and evidence measures (i.e. Red/Amber/Green - results).

There has been changes in workload priorities due a significant electricity supplier billing issue which has affected many British Gas customers nationwide. With the challenges faced, we believe we have managed to make good and steady progress accross all the elements of the objective, which has led to:

- Greatly improved energy management awarenes, knowledge, understanding and control within our organisation.
- Quantified reductions in energy consumption, carbon and costs through Invest-to-Save schemes and better property/house management.
- Reduced our carbon emissions through improved technologies, better control on sonsumption, improving energy awareness and better building management through good housekeeping.
- Safeguarded against significant future energy cost uplifts where energy conservation activities took place.
- Improved the quality of our environments e.g. classrooms and longevity of appliances.
- Improved collaboration between services accross the organisation.
- Secured and implemented significant investment in solar PV arrays for Homes For The Elderly.
- Improved local site meter reading, monitoring and reporting (a good house keeping technique).

IO4 - Carbon Management: Reduce our carbon footprint




Actions - Good Housekeeping

Title	Comment	RAG	Overall Status	% Complete
Carbon Reduction Commitment (CRC) Training	<p>At the beginning of the year, we developed and established a 'standardised CRC presentation/training information pack' for use/delivery to school cluster groups, with comprehensive and site specific information, that is tailored to each cluster as relevant. Site specific information includes Display Energy Certificates, site energy audits, benchmarking and CRC costs. Site specific detail is often discussed with the head teachers during the presentations.</p> <p>Presentations were delivered to cluster groups held at Heolddu Comprehensive (9th July) YG Cwm Rhymney (18th Sept), Tir Y Berth Primary (22nd Oct) and Rhymney Comprehensive (15th Jan). In total 31 schools had staff that were trained.</p> <p>Progressing this action to its full potential has been difficult due to gaining access to the Head-teacher cluster groups. Cluster group schedules are pre-determined by their Chair(s) and finding suitable slots is quite difficult. Schools often meet on the same day which compounds the problem.</p> <p>Feedback from attendees has been very positive and gratefully received by the Head Teachers. They have left the training feeling enthused and able to make energy improvements in their school.</p> <p>This action will be on-going beyond the lifetime of this objective.</p>		Complete	100
General awareness raising through various media formats	<p>We have recorded 38 activities, which include;</p> <ul style="list-style-type: none"> - Intranet awareness on water cost reductions for staff/residents, identifying Invest to save case studies. - specific advice via emails to schools. <p>For example, a case study was developed into a presentation pack for the School Budget Forum, explaining how Ysgol Penalltau had made a 15% reduction in gas consumption.</p> <p>We even managed to assist Sight Cymru (Pontypool) with a query they had regarding a domestic customer and Welsh Water.</p> <p>This action will be on-going beyond the lifetime of this objective.</p>		Complete	100
Re-issue benchmark information to building managers	<p>In 2015/16 there has been a major billing issue with British Gas. This has prevented the issuing of benchmark information to building and budget managers. That said in all of the CRC training events we have issued site specific benchmark information i.e. covering 31 schools.</p> <p>Some preparatory work and benchmarking exercises have been piloted/actioned for financial management and control purpose, but cannot be completed for many of our sites.</p>		Partially Met	30

IO4 - Carbon Management: Reduce our carbon footprint**Actions - Good Housekeeping**



Title	Comment	RAG	Overall Status	% Complete
Re-issue energy audits	<p>All existing energy audits were re-issued as a one off exercise in Q1 of 15/16. This was particularly useful for new building managers and any new Head-teachers.</p> <p>Throughout the year, the Energy Team received a number of calls as a result of this exercise, asking for specific advice on elements of the audits, which were dealt with on a day to day basis. With Glyngae Primary and Bedwas Comp receiving further site visits and updated reports.</p> <p>The key benefit of this exercise, is to re-motivate staff to consider improving energy efficiencies in our properties.</p>	🟢	Complete	100
Training key staff eg caretakers on building energy management systems	<p>We have provided additional Building Energy Management System (BEMS) training to staff at Penllwyn, Greenhill, Bargoed Primary and YG Cwm Rhymni Y Gwyndi schools, and Blackwood Miners Institute and Islwyn Indoor Bowls.</p> <p>The key benefits to system users/operators, has been to improve site management, creating better comfort levels, cost and energy consumption control and system understanding and efficiencies (Raising awareness & good housekeeping - correct use of systems).</p> <p>Training is delivered by request and currently, further sites are being investigated to possibly use BEMS's and therefore, work against this action is likely to go beyond the lifespan of this objective. There is no person currently waiting for this training.</p>	🟢	Complete	100
Workshops, events and training with staff and pupils in schools	<p>At the beginning of the year, we developed and implemented a standardised and prescribed information and training presentation pack titled 'Energy Savings In Schools' and then delivered throughout the year 11 events to primary schools: Fleur De Lys, Waunfawr, Pengam, Tyn Y Wern, Cwrt Rawling, Ty Sign, Twyn, Tiryberth, Rhydri, Pontlloftyn and Maesycwmmmer.</p>	🟢	Complete	100

IO4 - Carbon Management: Reduce our carbon footprint**Actions - Asset Management**



Title	Comment	RAG	Overall Status	% Complete
Pontllanfraith offices are being considered for disposal, which has the potential for savings 409 tonnes of carbon per year	Both Electricity and gas services remain connected at Pontllanfraith house. Gas to preserve frost protection via heating and electricity to maintain alarm function. Both to maintain the integrity of the building. The gas meter will be removed post April 2016. The building gas and electricity consumption has been reduced to the bear minimum resulting in significant carbon reductions. Actual carbon savings can be monitored and reported properly in 16/17 to give a clearer perspective.		Partially Completed	90
There are likely to be numerous properties considered for sale or disposal including the old cash office Risca and the old Caerphilly library which may bring some carbon savings	Newbridge Public Toilets have been disposed off, Caerphilly Old Library has been leased out. The Cash Office in Risca has been sold along with Infoquest Youth Building, Pontllanfraith. These sites will generate a carbon saving, however the new Caerphilly Library may have reulted in an increase in carbon emissions. Pontllanfraith House (Civic Centre) is also in the process of being decommissioned for disposal.		Partially Completed	100
Training staff to make better use of our buildings eg advising schools to locate after school activities to smaller buildings rather than use the main teaching blocks which need more heating and lighting, however carbon savings would be unquantifiable	Training for this is only provided as part of the wider CRC training and other general school/staff education and support. Please refer to other comments listed in the section GOOD HOUSEKEEPING actions: Carbon Reduction Commitment Training (CRC) and Training Key Staff e.g. caretakers on building energy management systems.		In Progress	50

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Actions - Invest to Save

Title	Comment	RAG	Overall Status	% Complete
Other technologies being considered include, insulation, voltage correction and controls	<p>Technologies that have been considered and implemented are:</p> <ul style="list-style-type: none"> •Energy efficient computer monitors at YG Cym Rhymni. Invested £8,749. Payback rate of 5 years and Lifetime Carbon Savings of 57 Tonnes •Replacement pool cover at Heolddu Leisure Centre. Invested £4,754. Payback 5 years. Lifetime Carbon Savings of 50 Tonnes •New pool pumps at heolddue leisure Centre. Invested £5,373. Payback 2 years. Lifetime Carbon Savings of 164 Tonnes •Light Emitting Diode (LED) lighting at St Cenydd Comprehensive. Invested £14,500. Payback 5 years. Lifetime Carbon Savings of 290 Tonnes •Light Emitting Diode (LED) lighting at Tyr Y Berth Garage Depot. Invested £17,413. Payback 6 years. Lifetime Carbon Savings of 303 Tonnes •New Boilers at Brodawel Home For The Elderly. Invested £12,600. Payback 7 years. Lifetime Carbon Savings of 253 Tonnes •New Building Energy Management System at Brodawel Home For The Elderly. Invested £3,020. Payback 5 years. Lifetime Carbon Savings of 49 Tonnes •New Building Energy Management System at Risca family Centre. Invested £2,005 <p>•Tendered lighting at Abercarn Primary. Possible implementation in 16/17</p> <p>•Identified significant lighting improvement at Newbridge Swimming Pool. Possible Implementation in 16/17.</p> <p>We have identified that the voltage correction unit from Pontllanfraith House can be relocated to Tir Y Berth Depot, and we are currently evaluating the implications of the relocation.</p> <p>We have for the first time funded the replacement of old inefficient computer monitors with energy efficient monitors at Lewis Boys Comprehensive.</p>		Complete	100
There is opportunity to replace existing street lighting lamps (90 watts) with high efficiency LED's (19 watts) units	<p>Originally, we had two budgets this year of approx. 8500 retro fit gear tray LEDS and another of about 750 LED lamps .</p> <p>We actually replaced 8,142 lamps during this reporting year, and a total of 9,198 since the start of the replacement programme.</p> <p>In addition to the specific street light conversions, there were also some other isolated pockets of improvement such as those associated with Crumlin junction improvements and Newbridge town centre enhancement.</p>		Complete	100

IO4 - Carbon Management: Reduce our carbon footprint**Actions - Invest to Save**

Title	Comment	RAG	Overall Status	% Complete
To promote understanding and benefits of water conservation through consumption management and control across schools, leisure, and other non- domestic buildings.	<p>Resource constraints within the Energy Team during the year and changing priorities of workloads has hindered the level of progress intended with this particular action during the year. The following message was posted on the intranet; "If your a customer of welsh water and your total household income is £12,500 or less a year, you may be entitled to up to 55% or an average of £250 off your water and sewerage bill. This is an average amount and we will be able to confirm the reduction from your bill if you are eligible and after you apply. For Further information www.dwrcymru.co.uk/en/my-account/helpu.aspx.</p> <p>Also, in each of the 13 Energy Audits Reports completed this year (12 issued & discussed with site officers) there was specific guidance on efficient water conservation technologies e.g. push taps and urinal controls. The audits also made reference to the importance of maintenance to ensure these control devices are operating as intended.</p> <p>We have also been working closely with Welsh Water to identify an accurate and up to date site data list to validate all our site supplies and ensure appropriate billing. We have secured a commitment from Welsh Water to provide site information covering; account reference, meter size, annual consumption, water/sewerage cost split, meter location, supply address and billing address. This is a significant step forward in the provision of information from Welsh Water which shouldn't be under estimated. This will facilitate improvements in this on going objective for 16/17.</p> <p>There were also several site visits which identified water leaks. Appropriate advice was issued to take immediate action with the supplier, particularly seeking rebates on waste water charges (where possible) and how to remediate the problems.</p>		In Progress	75
Various building energy management systems	<p>We are still reviewing the Building Energy Management System (BEMS) for Tir Y Berth depot and Fochriw Primary school and St Gwladys Primary school.</p> <p>We have implemented a Building Energy Management System at Risca Family Centre, which previously had absolutely no heating controls and presented health and safety concerns.</p> <p>We have also installed BEMS at Brodawel Home For The Elderly which will provide far better control.</p>		Complete	100

IO4 - Carbon Management: Reduce our carbon footprint**Actions - Invest to Save**

Title	Comment	RAG	Overall Status	% Complete
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Various lighting upgrades	<p>We have identified 953 lights in TY Penallta that can be changed to a more energy efficient format called Light Emitting Diode (LED).</p> <p>To date, we have sourced and trialed some LED lamps which were deemed unsuitable and are in the process of sourcing alternatives.</p> <p>LED replacement fittings would provide a significant reduction in carbon and electricity costs. Funding would be provided via the invest to save scheme.</p> <p>We have also requested costs for replacing TY Penallta Office Lighting (one wing of one floor) to the LED format and linking this into a Dali control system which would permit control of the lights from a PC and would enable dimming and other programmable functions.</p> <p>New LED lights are being installed at Tir Y Berth Garage Depot in the roof and inspection pits.</p> <p>We have tendered and identified a viable project for complete relighting at Abercarn Primary. We have identified that the swimming pool lighting at Newbridge Leisure Centre swimming pool can be changed for LED's and this is likely to happen in 16/17.</p> <p>We have assisted in the installation of LED lights in some rooms at St Cenydd Comprehensive.</p>		Partially Completed	70

IO4 - Carbon Management: Reduce our carbon footprint**Actions - Renewable Technology**

Title	Comment	RAG	Overall Status	% Complete
Further promote internally the benefits and understanding of the renewable technology at the Carbon Group and possibly other forums such as School Budget forum	<p>Sites reported to the carbon group were:</p> <ul style="list-style-type: none"> *Rhymney Comprehensive (10.6% over performance) *Greenhill Primary (11.3% over performance) *Trinity Fields (28.1% over performance) *Ysgol Ifor Bach (13.5% over performance) *St James ICC (17.4% over performance) *TY Penallta (11.5% over performance) *Cwm Ifor Primary (2.2% over performance) <p>As can be see from above all FIT schemes over performed in terms of anticipate kWh generation recorded in the previous year.</p> <p>In 15/16 we reviewed all Homes for The Elderly and established that 5 sites were suitable for PV installation. Brodawel and Myn Y Mynydd were successfully installed in December 15 and Ty Clyd, TY Iscoed and Beatrice Webb were installed in Q4. Total value of the scheme was circa £260k and funding was provided based on payback rates.</p> <p>We were also asked by Corporate Finance to review other sites for 16/17.</p> <p>The PV array installed on Islwyn Indoor Bowls club generated 28,351 kWh in 15/16. The club consumed 28,203 kW of the generation figure. This prevented the club purchasing that power from SWALEC, thus improving the efficiency of the club which has strong community use.</p>	-	Complete	100
The forthcoming Islwyn West Comprehensive School in Oakdale is likely to require a PV system in the region of 72kwp, which would provide carbon savings in the region of 34 tonnes per year. This will require preparation consideration in 2015/	It has been established as part of the design process that Islwyn West Comprehensive school will require a PV array. It will cover approximately 450m2 in roof space and is estimated to require 264 PV panels. When the make and model of the PV panels has been established annual kW generation figures will be calculated. No further progress could have been made during this reporting year.	-	In Progress	100

IO4 - Carbon Management: Reduce our carbon footprint

How much did we do?

Title	Actual	Target	Intervention	RAG	Result 12 Months Ago	Comment
The number of workshops and events held with schools as part of the Eco Schools programme	77	71	50	☒	91	62 Individual school visits made to support schools working through the Eco Schools programme 7 Eco School pre green flag assessments 7 Eco School training sessions 1 Fairtrade School training session (supporting Global Citizenship topic area of Eco Schools)
The number of Street Light converted to Light Emitting Diode (LED) format	8142	9110	5000	☒	N/a	8,142 were completed during 2015/16. However, from the start of this specific activity a total of 9,198 has been completed at the end of March 2016, with funding secured for a further 1,250 (residential area's) in 2016/17.
The number of Salix projects delivered within the year	8				12	No formal target was set for 2015/16 as identified projects must be tendered and evaluated for payback. Projects are: new computer monitors for YG Cwm Rhymini, Heolddu LC pool cover and pool pumps. New lighting for St Cenydd Comp. Tiryberth Pri lighting. Broadawel: Boiler & BEM's. Risca Family Centre: BEM's. Bids currently in progress for 16/17 are; Abercarn Pri: Whole school lights and Newbridge: Pool LED lights. Up to 2016, there has now been 228 projects delivered in a 11 year period.
The number of renewable energy technologies (claiming Feed in Tariffs or Renewable Heat Incentive) that are installed, and the merits and benefits of existing renewable schemes.	7	7	5	☒	7	At the start of Q1 we provided a full report to the Carbon Group on the performance of the 7 schemes for 2014/15. We reported that all of the schemes were generating power and therefore carbon savings far in excess of the anticipated output. Trinity Fields school had generated 28% higher output than projected. Carbon group was satisfied with the PV's performance with no follow up actions required.
The number of energy awareness sessions delivered to schools	11	15	10	☒	11	Unfortunately, no sessions could be delivered in the last quarter of the year, due to the unexpected departure of a member of staff, whose post was not re-filled until April 2016.
The number of CRC training events delivered	2	4	1	☒	2	The target for 15/16 was for 4 Cluster Groups. 2 Sessions were delivered (Oct 2015 and Jan 2016) inclusive of 13 individual schools between the Lewis and Rhydney Cluster Groups. Arrangement for further sessions was difficult due to accessibility to Head-teachers through their Cluster Chair's (Agenda's).
No of Energy Audit Reports discussed and handed over to site Managers	12	25	12	☑	14	13 Energy Audit Reports were completed within the year. However, only 12 were handed over and discussed with site Managers. For this area of work, limited resources within the Energy Team since 2013 have been prioritised to cover DEC's plus other work areas such as LAEF.

IO4 - Carbon Management: Reduce our carbon footprint**How well did we do it?**

Title	Actual	Target	Intervention	RAG	Result 12 Months Ago	Comment
Display Energy Certificate (DEC) - The number of 'Advisory and Recommendation Reports' generated and delivered to building managers (7 yr cycle)	14					No formal target set for this measure, as the property portfolio is dynamic and the number of properties requiring Advisory and Recommendations Reports changes each year (expected on 7 year cycles). Any reports produced are beneficial to raising further awareness, knowledge, understanding, potential improvement/investment opportunities and energy/carbon savings.
Display Energy Certificate (DEC) - The number of 'Property Certificates' generated and issued within the year	88	90	80	⬇️	89	The number of DEC's required in any given year changes year on year and no previous targets were set for this measure. However, the target of 90 for this year was ambitious, given certain staff resource constraints experienced during the year.
Total lifetime energy savings (kWh) resulting from the street lighting conversions	2208476	2500000	1800000	⬇️	N/a	The 2015/16 result is based on the 8,142 lamp conversions completed during 2015/16. However, from the start of this specific activity a total of 9,198 conversions has been completed at the end of March 2016, which would give the authority a total lifetime saving of 2,494,912 kWh.
% of schools with the highest (green flag) award under the Eco Schools programme as at 31st March	81	73	70	⬆️	71	At the end of March 2016, 73 schools, equating to 81% of schools have Green Flags.
The number of our schools which achieve a Platinum award under Eco Schools	22	21	19	⬆️	15	At the end of 2015/16: The following total (73) awards have been achieved: Green Flag status - 18 1st flags, 13 2nd flags, 20 3rd flags and 22 Platinum awards - 4th flags.

IO4 - Carbon Management: Reduce our carbon footprint**Is anyone better off?**

Title	Actual	Target	Intervention	RAG	Result 12 Months Ago	Comment
Annual carbon emission savings (Tonnes of CO2) from Council buildings - Resulting from LAEF schemes that have been implemented	85.29				118	Yearly measure - No target formally set for 15/16 as identified projects must be tendered and evaluated for payback rates. This measure forms part of the assessment (contribution) towards the CCBC Carbon Reduction Strategy (2009) and is calculated from the Local Authority Energy Fund (LAEF) schemes that were implemented (within the year). Through all our schemes/projects delivered at the end of 15/16, a total of 2,569.29t annual carbon savings has been realised. The PI result here, shows potential 'annual savings' (reductions in emissions) of the technologies invested in, within this year.
The lifetime carbon saved on converting to high efficiency street lighting (tonnes/year)	1091.00	1235.00	700.00	-	N/a	The 2015/16 result is based on the 8,142 lamp conversions completed during 2015/16. However, from the start of this specific activity a total of 9,198 conversions has been completed at the end of March 2016, which would give the authority a total lifetime saving of 1,233 Tonnes CO2.